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BUILDING A SCIENTIFIC FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS



ECOLOGICAL RESEARCH PROGRAM

ECOSYSTEM SERVICES RESEARCH FOCUSES ON WETLANDS

Issue:

Wetland ecosystems, including river floodplains, coastal marshes, mangroves, and swamps, deliver a wide range of valuable ecosystem services that contribute to human well-being. They provide safe water supply, fish and fiber, wildlife habitat, flood regulation and recreation, among many other benefits.

Population growth, increasing economic development, and associated land use changes have been primary reasons for degradation and loss of wetlands. Wetlands are also facing other threats including the consequences of global climate change and the increase of excessive nutrient runoff from agriculture and other sources. As a result, the EPA's "no net loss" policy and the President's Wetlands Initiative support efforts to protect, enhance and preserve wetlands.

State and local entities responsible for the management of wetlands are challenged with how to evaluate ecosystem services provided by wetlands in order to make informed land-use decisions. New decision support tools are needed to help decision makers assess the trade-offs between current and future uses of wetlands. These trade-offs include coastal land use and storm surge protection; agricultural production and water quality; and land use and biodiversity.

Science Objective:

The Ecological Research Program (ERP) in EPA's Office of Research and Development (ORD) is studying wetland ecosystem services to provide the decision support tools needed to target, prioritize, and evaluate policy and management actions that protect, enhance, and restore



Wetlands protect water supplies

the ecosystem goods and services provided by wetlands.

The science will enable decision makers to consider the full range of benefits and values provided by wetland ecosystem services. The objectives of ERP's wetland research are to:

- Identify, characterize, and assess wetland services that contribute to human well-being

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- Produce the information and methods needed to shape policy and management actions that conserve and enhance the benefits of wetland services
- Apply information on the benefits of wetland services to valuation and decision-making processes for resource management, environmental protection and ecosystem restoration

Application and Impact:

EPA research will document the value of wetland ecosystem services and provide resource managers, planners, government decision makers, and others with the tools and information they need to best manage wetland resources while maintaining valuable ecosystem services.

Using these tools, decision makers will have accurate place-based information on wetland ecosystem services and their value and will be able to predict the effects of local and landscape manipulations on the provision of wetland ecosystem services. These decisions will help ensure human well-being by conserving

and enhancing wetland ecosystem services through the ability to evaluate the long-term value and the probable future impacts and costs of management actions under a variety of alternative scenarios.

On Earth Day 2004, wetlands were identified as a priority for preservation, restoration, and enhancement by the President's Wetlands Initiative which expanded the existing "no net loss" policy by calling for restoration, protection, and improvement of 3 million acres of wetlands by 2009 (CEQ, 2006). The ERP research will inform Agency decisions on the location and scale at which certain types of wetlands should be protected, enhanced, or restored to optimize wetland services.

This research will inform many of EPA's wetlands programs, including Clean Water Act Programs, 5 Star Restoration Program, and Wetlands Grants Program and will assist EPA regional offices in setting priorities for wetland restoration and enhancement and identifying

critical ecosystems or ecological resources for regional attention.

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CONTACTS:

Virginia Engle, EPA's Office of Research and Development, 850-934-9354,
engle.virginia@epa.gov

Mary Kentula, EPA's Office of Research and Development, 541-754-4478,
kentula.mary@epa.gov

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